

La distribution Anaconda

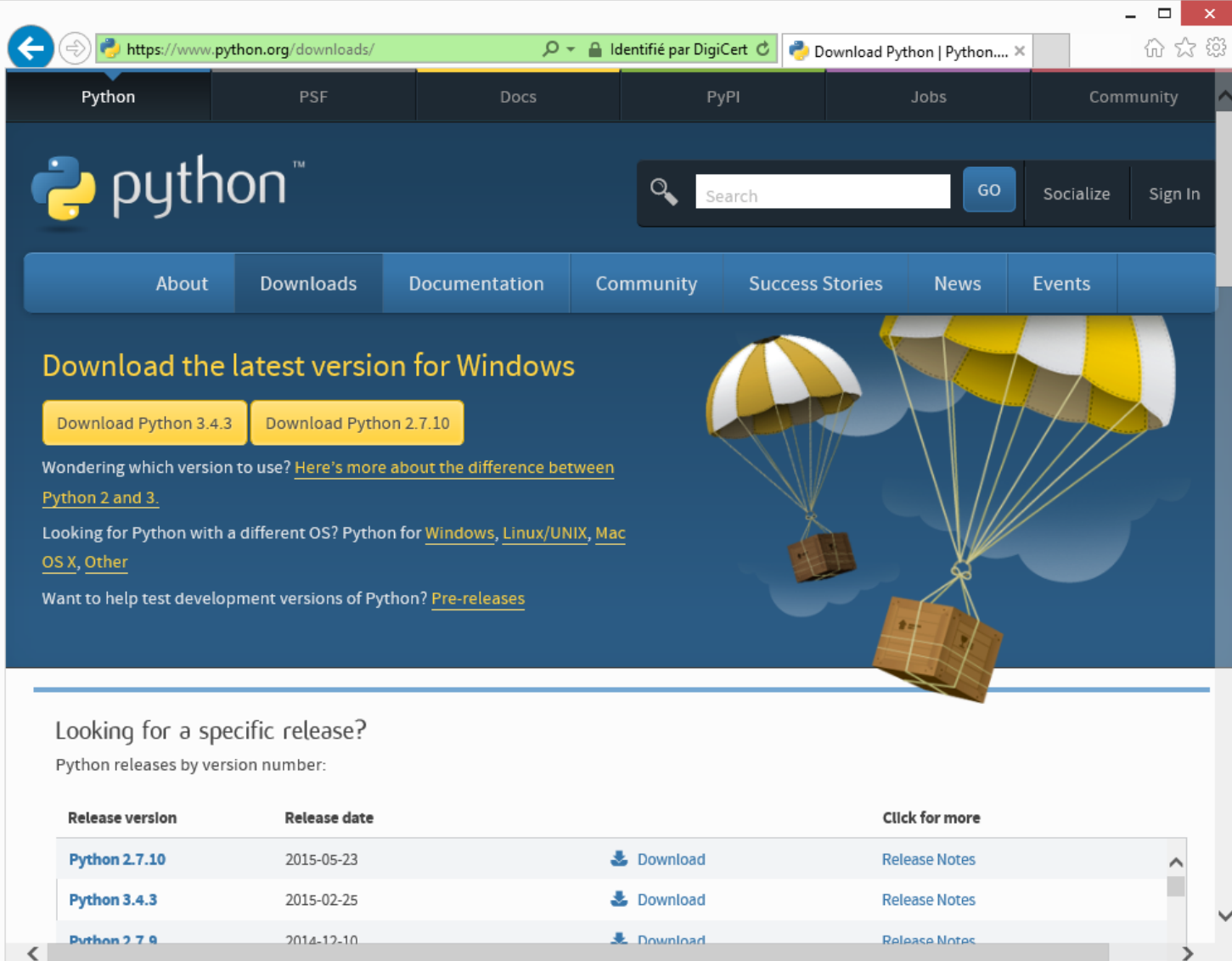
Environnement de développement et accès aux packages

Ricco Rakotomalala

http://eric.univ-lyon2.fr/~ricco/cours/cours_programmation_python.html

Environnement de travail et gestion des packages

DISTRIBUTION STANDARD DE PYTHON

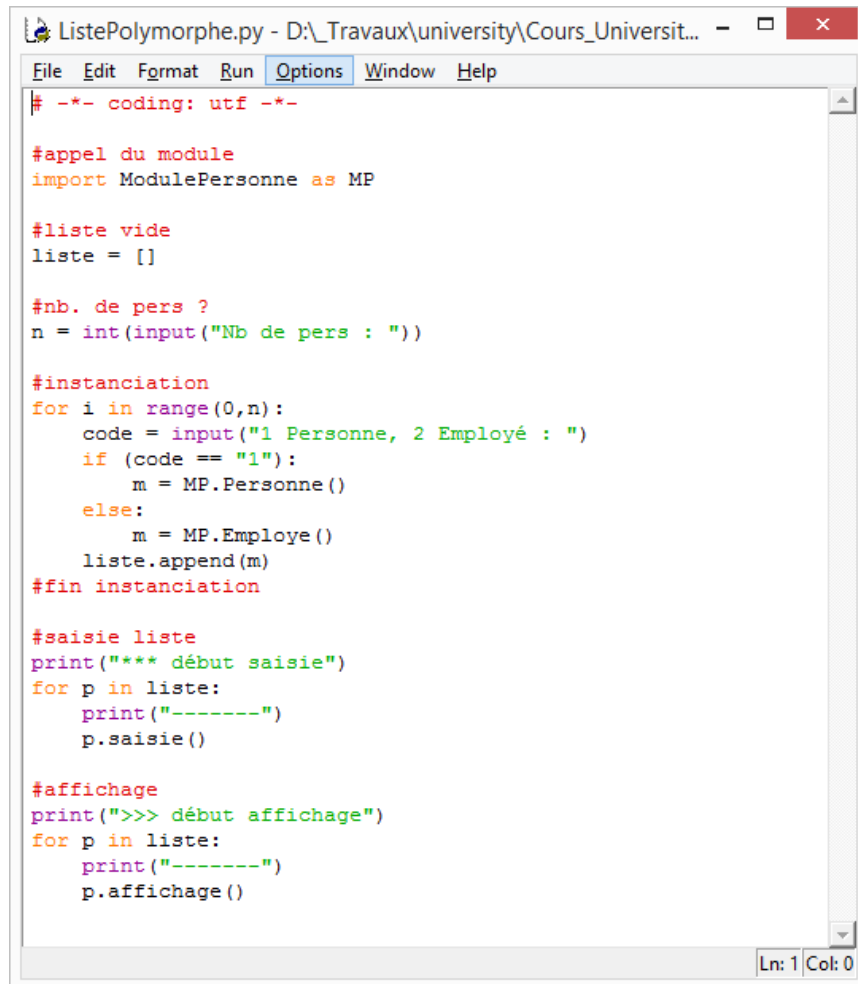


The screenshot shows the Python.org website with the following elements:

- Navigation Bar:** Python, PSF, Docs, PyPI, Jobs, Community.
- Header:** Python logo, Search bar, Socialize, Sign In.
- Sub-navigation Bar:** About, Downloads, Documentation, Community, Success Stories, News, Events.
- Main Content:**
 - Download the latest version for Windows:** Two buttons for "Download Python 3.4.3" and "Download Python 2.7.10".
 - Text:** "Wondering which version to use? [Here's more about the difference between Python 2 and 3.](#)"
 - Text:** "Looking for Python with a different OS? Python for [Windows](#), [Linux/UNIX](#), [Mac OS X](#), [Other](#)"
 - Text:** "Want to help test development versions of Python? [Pre-releases](#)"
- Illustration:** Two parachutes carrying boxes, symbolizing distribution.
- Table:** "Looking for a specific release?" section with a table of Python releases.

Release version	Release date	Click for more
Python 2.7.10	2015-05-23	Download Release Notes
Python 3.4.3	2015-02-25	Download Release Notes
Python 2.7.9	2014-12-10	Download Release Notes

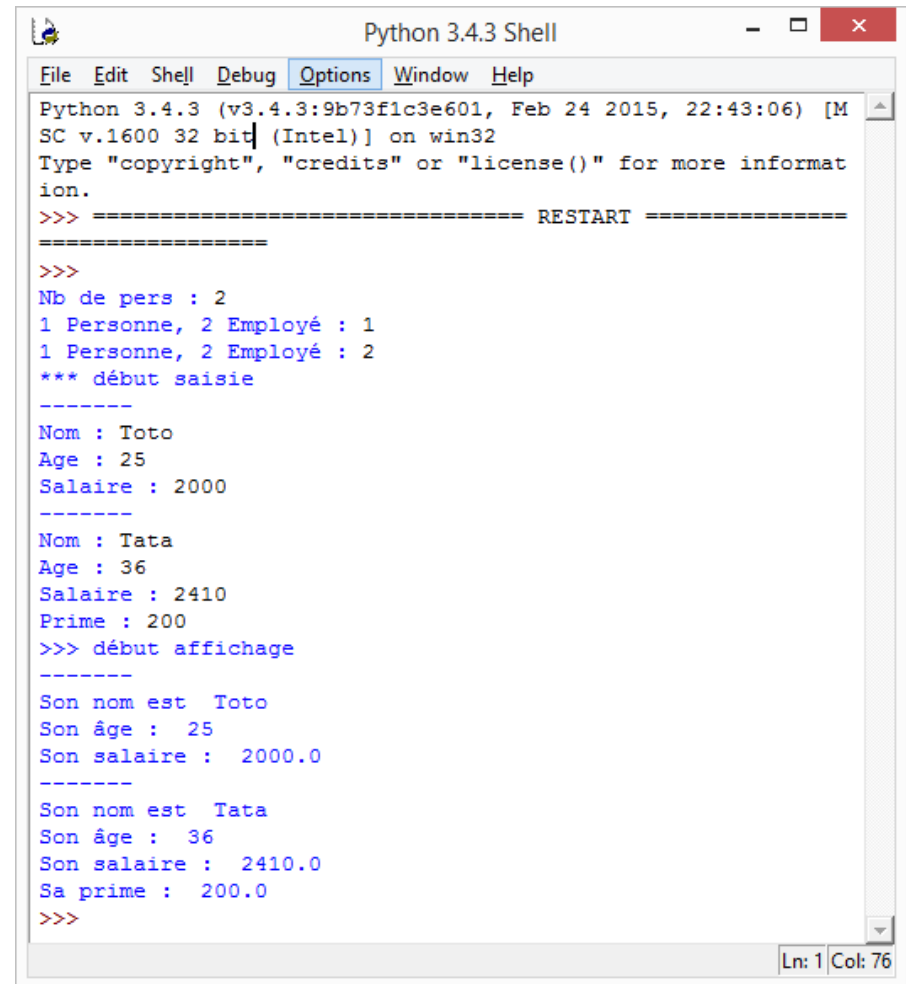
Le site de Python met à notre disposition les distributions officielles



```
# -*- coding: utf -*-  
  
#appel du module  
import ModulePersonne as MP  
  
#liste vide  
liste = []  
  
#nb. de pers ?  
n = int(input("Nb de pers : "))  
  
#instanciation  
for i in range(0,n):  
    code = input("1 Personne, 2 Employé : ")  
    if (code == "1"):  
        m = MP.Personne()  
    else:  
        m = MP.Employe()  
        liste.append(m)  
#fin instanciation  
  
#saisie liste  
print("*** début saisie")  
for p in liste:  
    print("-----")  
    p.saisie()  
  
#affichage  
print(">>> début affichage")  
for p in liste:  
    print("-----")  
    p.affichage()
```

Ln: 1 Col: 0

IDLE, environnement de développement



```
Python 3.4.3 Shell  
File Edit Shell Debug Options Window Help  
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [M  
SC v.1600 32 bit (Intel)] on win32  
Type "copyright", "credits" or "license()" for more informat  
ion.  
>>> ===== RESTART =====  
>>>  
Nb de pers : 2  
1 Personne, 2 Employé : 1  
1 Personne, 2 Employé : 2  
*** début saisie  
-----  
Nom : Toto  
Age : 25  
Salaire : 2000  
-----  
Nom : Tata  
Age : 36  
Salaire : 2410  
Prime : 200  
>>> début affichage  
-----  
Son nom est Toto  
Son âge : 25  
Son salaire : 2000.0  
-----  
Son nom est Tata  
Son âge : 36  
Son salaire : 2410.0  
Sa prime : 200.0  
>>>
```

Ln: 1 Col: 76

Python Shell, pour l'exécution des programmes. Fonctionnement interactif possible.

Problème des packages

```
Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [MSC
v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information
>>> import numpy
Traceback (most recent call last):
  File "<pyshell#0>", line 1, in <module>
    import numpy
ImportError: No module named 'numpy'
>>>
```

L'affaire se corse lorsqu'il s'agit d'installer des modules additionnels (ex. [numpy](#))

Il faut récupérer le package sur PyPI et procéder à l'installation avec le logiciel PIP. L'opération n'est pas évidente du tout parce que la documentation n'est pas claire, notamment concernant les dépendances.

The screenshot shows the PyPI website (https://pypi.python.org/pypi) with the 'Package Index' header. A red arrow points from the 'Get Packages' section to the 'Updated' table. The 'Get Packages' section contains the text: 'To use a package from this index either "pip install package" (get pip) or download, unpack and "python setup.py install" it.' The 'Updated' table lists the following packages:

Updated	Package	Description
2015-08-07	socialschools-cms 1.4.4	SocialSchools CMS app with defaults for django-cms
2015-08-07	mynester357 1.0.0	a simple printer of nested lists
2015-08-07	BOSI 1.1.25	Big Switch Networks OpenStack Installer
2015-08-07	rom 0.33.0	A Redis object mapper for Python
2015-08-07	erajp 0.0.4	Convert datetime to Japanese era
2015-08-07	myprint 1.0.0	A simple printer of nested lists

Exemple pour « numpy »

python™

» Package Index > numpy > 1.9.2

PACKAGE INDEX >>

Browse packages

Package submission

List trove classifiers

List packages

RSS (latest 40 updates)

RSS (newest 40 packages)

Python 3 Packages

PyPI Tutorial

PyPI Security

PyPI Support

PyPI Bug Reports

PyPI Discussion

PyPI Developer Info

ABOUT >>

NEWS >>

DOCUMENTATION >>

DOWNLOAD >>

COMMUNITY >>

FOUNDATION >>

CORE DEVELOPMENT >>

numpy 1.9.2

Downloads ↓

NumPy: array processing for numbers, strings, records, and objects.

NumPy is a general-purpose array-processing package designed to efficiently manipulate large multi-dimensional arrays of arbitrary records without sacrificing too much speed for small multi-dimensional arrays. NumPy is built on the Numeric code base and adds features introduced by numarray as well as an extended C-API and the ability to create arrays of arbitrary type which also makes NumPy suitable for interfacing with general-purpose data-base applications.

There are also basic facilities for discrete fourier transform, basic linear algebra and random number generation.

File

numpy-1.9.2-cp27-none-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_11_intel.macosx_10_11_x86_64.whl

numpy-1.9.2-cp33-cp33m-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_11_intel.macosx_10_11_x86_64.whl

numpy-1.9.2-cp34-cp34m-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_11_intel.macosx_10_11_x86_64.whl

numpy-1.9.2.tar.gz (md5, pgp)

numpy-1.9.2.zip (md5, pgp)

Downloads (All Versions):

23827 downloads in the last day

144446 downloads in the last week

655608 downloads in the last month

Comment procéder
sous **Windows** ? On a
un peu (beaucoup) du
mal à s'y retrouver.

Unofficial Windows Binaries for Python Extension Packages
by **Christoph Gohlke**, Laboratory for Fluorescence Dynamics, University of California, Irvine.

This page provides 32- and 64-bit Windows binaries of many scientific open-source extension packages for the official [CPython distribution](#) of the [Python](#) programming language.

The files are unofficial (meaning: informal, unrecognized, personal, unsupported, no warranty, no liability, provided "as is") and made available for testing and evaluation purposes.

If downloads fail reload this page, enable JavaScript, disable download managers, disable proxies, clear cache, and use Firefox. Please only download files as needed.

Most binaries are built from source code found on [PyPI](#) or in the projects public revision control systems. Source code changes, if any, have been submitted to the project maintainers or are included in the packages.

Refer to the documentation of the individual packages for license restrictions and dependencies.

Use [pip](#) version 6 or newer to [install the download](#)

Many binaries depend on [NumPy-1.9+MKL](#) and Visual C++ 2010 ([x64](#), [x86](#), for CPython 3.3 and packages.

The binaries are compatible with the official CPython distributions included with Blender, Maya, Anaconda, WinPython etc. Many binaries are not.

The packages are ZIP or 7z files, which allows for

The files are provided "as is" without warrant is with you.

Index by date: **numpy** kwant jpype twisted
opencv pywavelets babel rasterio gdal py

NumPy, a fundamental package needed for scientific computing with Python.
NumPy+MKL is linked statically to the [Intel® Math Kernel Library](#).
NumPy+MKL includes the [runtime libraries for Intel C++ and Fortran](#) in the `numpy.core` directory.
The unoptimized builds are not tested and not compatible with many other binaries on this page.

- [numpy-1.10.0b1+mkl-cp26-none-win32.whl](#)
- [numpy-1.10.0b1+mkl-cp26-none-win_amd64.whl](#)
- [numpy-1.10.0b1+mkl-cp27-none-win32.whl](#)
- [numpy-1.10.0b1+mkl-cp27-none-win_amd64.whl](#)
- [numpy-1.10.0b1+mkl-cp33-none-win32.whl](#)
- [numpy-1.10.0b1+mkl-cp33-none-win_amd64.whl](#)
- [numpy-1.10.0b1+mkl-cp34-none-win32.whl](#)
- [numpy-1.10.0b1+mkl-cp34-none-win_amd64.whl](#)
- [numpy-1.10.0b1+unoptimized-cp35-none-win32.whl](#)
- [numpy-1.10.0b1+unoptimized-cp35-none-win_amd64.whl](#)
- [numpy-1.9.2+mkl-cp26-none-win32.whl](#)
- [numpy-1.9.2+mkl-cp26-none-win_amd64.whl](#)
- [numpy-1.9.2+mkl-cp27-none-win32.whl](#)
- [numpy-1.9.2+mkl-cp27-none-win_amd64.whl](#)
- [numpy-1.9.2+mkl-cp33-none-win32.whl](#)
- [numpy-1.9.2+mkl-cp33-none-win_amd64.whl](#)

Un fichier « Wheel »
(.whl) est une archive
compilée permettant de
d'installer un package.
Pour Windows, les
packages sont
accessibles sur un site
non officiel (???)

Il faut choisir les bonnes
versions de Python et de
Windows, puis utiliser PIP.

2) Installer avec pip les packages indispensables à un environnement de travail scientifique

Il y a quatre packages indispensables: numpy, scipy, matplotlib et pillow. Python intègre depuis la version 3.4 un outil de gestion des packages, pip (pour package installation python), dont l'exécutable est situé dans C:\Python34\Scripts.

En cas de besoin, consulter le [site officiel de pip](#). Voilà comment l'utiliser avec un PC sous Windows et connecté à l'internet:

(1) Télécharger sur le site de [Christoph Gohlke](#) (ou récupérer sur une clé usb) les fichiers .whl des packages désirés correspondant à la version de Python. Avec Python 3.4 et en mai 2015, ces fichiers s'appellent:

- numpy-1.9.2+mkl-cp34-none-win_amd64.whl
- scipy-0.15.1-cp34-none-win_amd64.whl
- Pillow-2.8.1-cp34-none-win_amd64.whl
- matplotlib-1.4.3-cp34-none-win_amd64.whl

(2) Recopier ces fichiers dans le répertoire C:\Python34\Scripts

(3) Créer un fichier batch (d'extension .bat) contenant les lignes suivantes, qui doivent être adaptées si les noms ont changés

```
cd C:\Python34\Scripts
pip install numpy-1.9.2+mkl-cp34-none-win_amd64.whl
pip install scipy-0.15.1-cp34-none-win_amd64.whl
pip install Pillow-2.8.1-cp34-none-win_amd64.whl
pip install matplotlib-1.4.3-cp34-none-win_amd64.whl
pause
```

(4) Exécuter ce fichier batch: les packages sont installés. De plus d'autres petits packages nécessaires sont installés automatiquement (c'est pour cette raison que l'ordinateur doit être connecté pendant l'exécution du batch).

Si l'ordinateur n'est pas connecté à l'internet lors de l'exécution du batch, il faudra que votre batch contiennent les lignes suivantes et que les fichiers supplémentaires .whl aient été auparavant récupérés et recopiés dans le répertoire C:\Python34\Scripts.

```
cd C:\Python34\Scripts
pip install numpy-1.9.2+mkl-cp34-none-win_amd64.whl
pip install scipy-0.15.1-cp34-none-win_amd64.whl
pip install Pillow-2.8.1-cp34-none-win_amd64.whl
pip install pytz-2015.2-py2.py3-none-any.whl
pip install pyparsing-2.0.3-py3-none-any.whl
pip install python_dateutil-2.4.2-py2.py3-none-any.whl
pip install six-1.9.0-py2.py3-none-any.whl
pip install matplotlib-1.4.3-cp34-none-win_amd64.whl
pause
```

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Un des très rares sites qui explique de manière « simple » et directement reproductible la procédure d'installation des packages (les librairies scientifiques ici).



Il faut trouver une solution moins contraignante, au moins pour les enseignements.

Intégration directe des « principaux » package et nouvel environnement de travail

LA DISTRIBUTION ANACONDA

[ANACONDA](#) est une distribution Python libre qui intègre directement un grand nombre de packages (il n'est donc plus nécessaire de les installer, mais on peut en ajouter d'autres si nécessaire avec le gestionnaire de packages [Conda](#)).

The image shows two overlapping browser windows. The background window is the Anaconda website (store.continuum.io/cshop/anaconda), featuring the Continuum Analytics logo and a list of features for Anaconda. The foreground window is the 'Anaconda Package List' page (docs.continuum.io/anaconda/pkg-), which displays a table of installed packages for Python 3.4. A yellow text box highlights that the list of installed packages is available online.

Continuum Analytics

HOME PRODUCTS CONSULT

Anaconda

Completely free enterprise-ready Python distribution for large-scale data processing, predictive analytics, and scientific computing

- 330+ of the [most popular Python packages](#) for science, math, engineering, data analysis
- Completely free - including for commercial use and [even redistribution](#)
- Cross platform on Linux, Windows, Mac
- Installs into a single directory and doesn't affect other Python installations on your system. Does not require root or local administrator privileges
- Stay up-to-date by easily updating packages from our [free, online repository](#)
- Easily switch between Python 2.6, 2.7, 3.3, 3.4, and experiment with multiple versions of libraries using our [conda](#) package manager and its great support for [virtual environments](#)
- Comes with tools to connect and [integrate with Excel](#)

Anaconda Package List

Anaconda includes Python (3.4.3, 3.3.5, 2.7.10, and/or 2.6.9), easy installation and updates of 150 pre-built and tested scientific and analytic Python packages including NumPy, Pandas, SciPy, Matplotlib, and IPython, with another 340 packages available with a simple "conda install packagename."

Anaconda includes development environments Jupyter and Spyder; integrated analysis environments IPython, Spyder and Jupyter; graphical debugger Spyder; and editors Sublime Text 2 and PyCharm. Packages are regularly added. Anaconda is available for Linux, OS X and Windows, and is always proudly free and Open Source.

For a full list of all packages currently available in Anaconda, see the table below.

Click each Python version to see its package list.

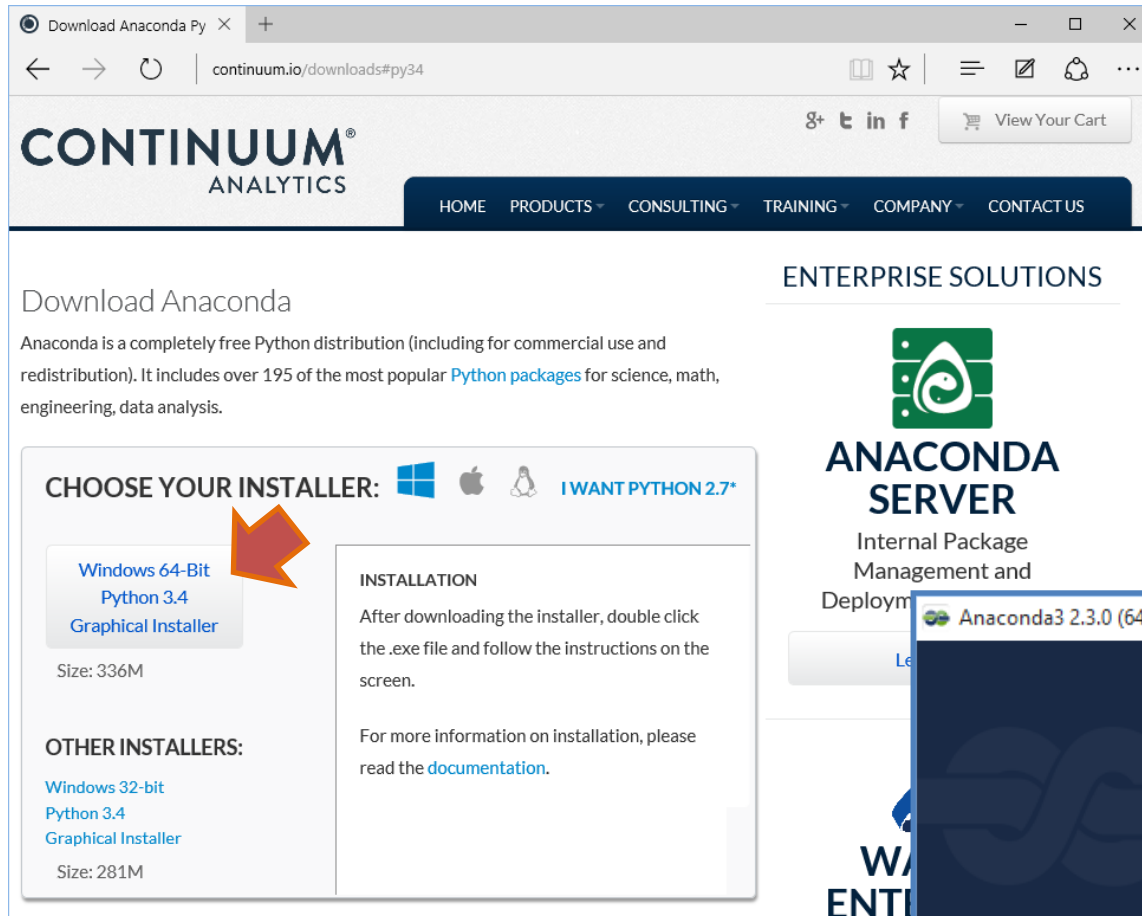
Python version: 2.6 Python version: 2.7 Python version: 3.3 **Python version: 3.4**

Python version: 3.4

Number of supported packages: 274

Name	Version	Summary / License	In Installer
abstract-rendering Linux Mac	0.5.1	Rendering as a binning process / 3-clause BSD	✓
affine	1.1.0	Matrices describing affine transformation of the plane. / BSD	
alabaster	0.7.3	A configurable sidebar-enabled Sphinx theme / BSD	✓




Installation de Anaconda



The screenshot shows the 'Download Anaconda' page on the Continuum Analytics website. The page has a dark blue header with the Continuum Analytics logo and navigation links. Below the header, there's a section titled 'Download Anaconda' with a description of Anaconda as a free Python distribution. A 'CHOOSE YOUR INSTALLER:' section is highlighted with a red arrow pointing to the 'Windows 64-Bit Python 3.4 Graphical Installer' option. To the right, there's an 'INSTALLATION' section with instructions. Further right, there's a section for 'ENTERPRISE SOLUTIONS' featuring the 'ANACONDA SERVER' logo.

Download Anaconda

Anaconda is a completely free Python distribution (including for commercial use and redistribution). It includes over 195 of the most popular [Python packages](#) for science, math, engineering, data analysis.

CHOOSE YOUR INSTALLER:    [I WANT PYTHON 2.7*](#)

[Windows 64-Bit Python 3.4 Graphical Installer](#)

Size: 336M

OTHER INSTALLERS:

[Windows 32-bit Python 3.4 Graphical Installer](#)

Size: 281M

INSTALLATION

After downloading the installer, double click the .exe file and follow the instructions on the screen.

For more information on installation, please read the [documentation](#).

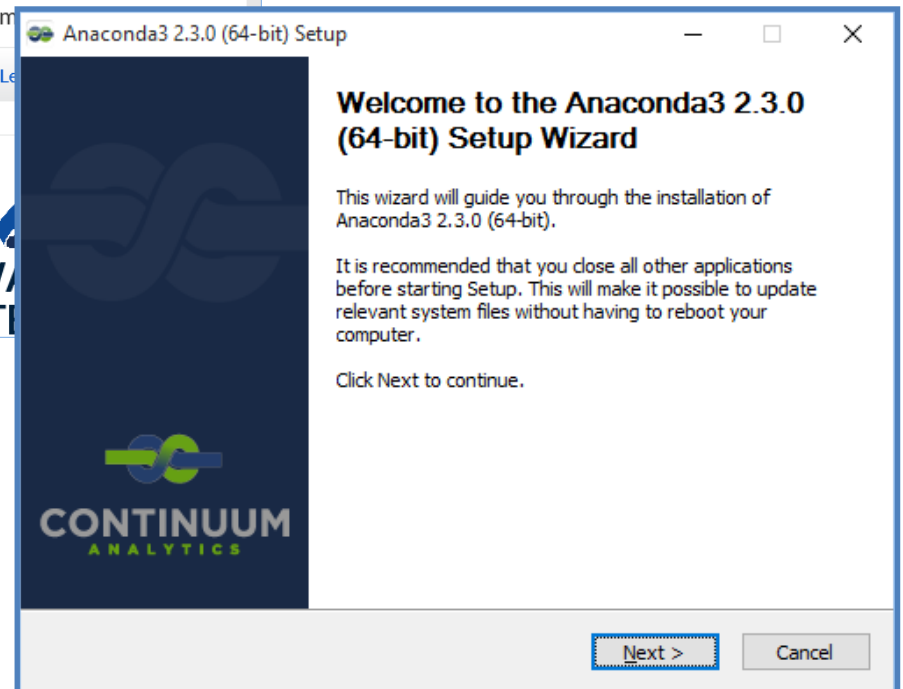
ENTERPRISE SOLUTIONS

ANACONDA SERVER

Internal Package Management and Deployment

Charger la version
qui vous convient.

Et lancer le setup



Disposer des dernières mises à jour

Pour disposer de la toute dernière version, aller dans le terminal DOS (Invite de commande Windows) et insérer les commandes suivantes :

> `conda update conda`

> `conda update anaconda`

Conda est le gestionnaire de package d'Anaconda.

```
Anaconda - conda update conda
D:\Logiciels\Anaconda3>conda update conda
Fetching package metadata: ....
Solving package specifications: .
Package plan for installation in environment D:\Logiciels\Anaconda3:

The following packages will be downloaded:
```

package	build	size
conda-env-2.3.0	py34_0	63 KB
setuptools-18.0.1	py34_0	650 KB
conda-3.15.1	py34_0	218 KB
pip-7.1.0	py34_0	1.5 MB
Total:		2.4 MB

```
The following packages will be UPDATED:

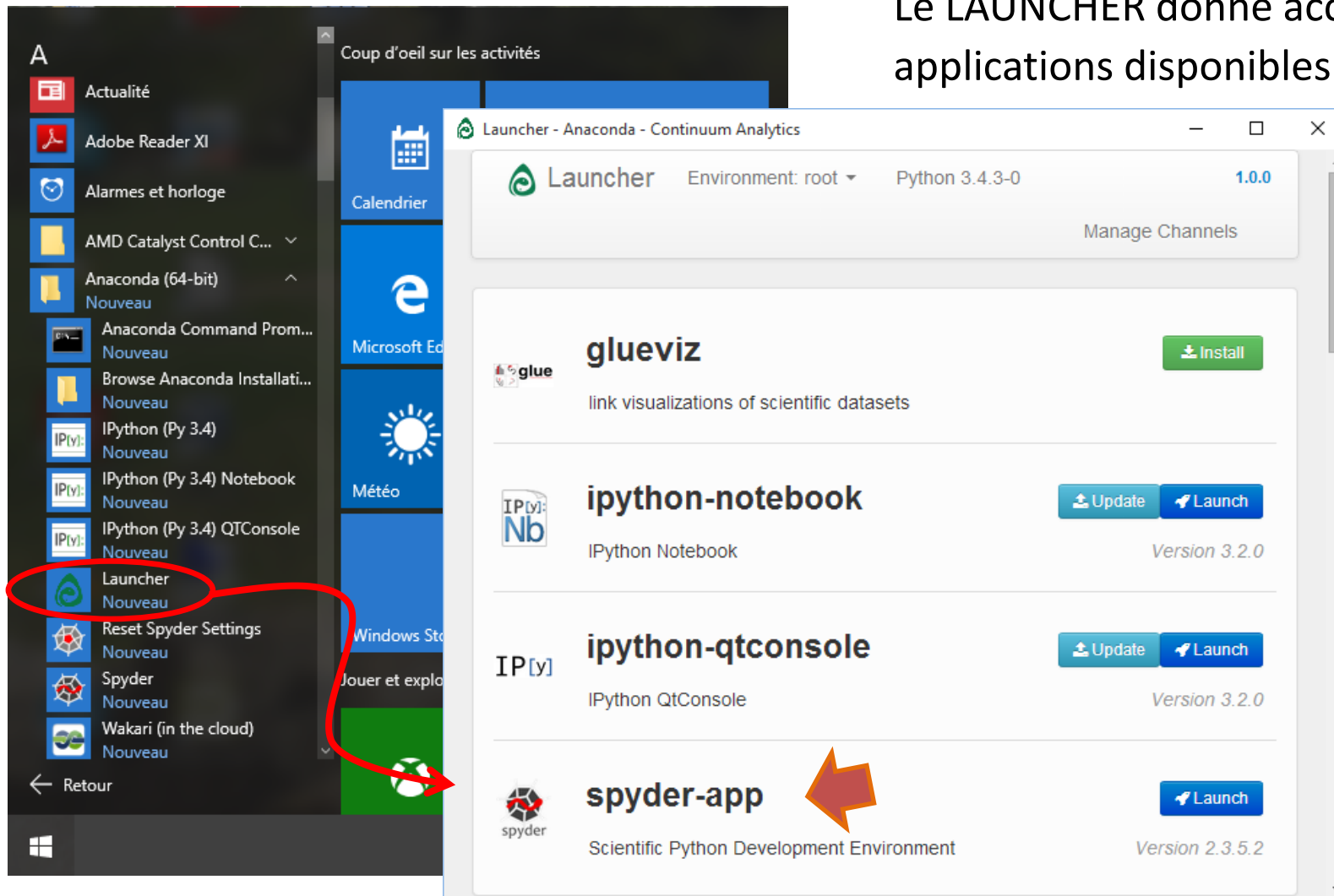
conda:      3.14.1-py34_0 --> 3.15.1-py34_0
conda-env:  2.2.3-py34_0  --> 2.3.0-py34_0
pip:        7.0.3-py34_0   --> 7.1.0-py34_0
setuptools: 17.1.1-py34_0 --> 18.0.1-py34_0

Proceed ([y]/n)? _
```

```
Anaconda
D:\Logiciels\Anaconda3>conda update anaconda
Fetching package metadata: ....
# All requested packages already installed.
# packages in environment at D:\Logiciels\Anaconda3:
#
anaconda      2.3.0      np19py34_0

D:\Logiciels\Anaconda3>
```

Le LAUNCHER donne accès aux applications disponibles



Sélectionner l'environnement de développement
« **spyder-app** » (cliquer sur **Launch**).

The screenshot displays the Spyder Python IDE interface. The main window is titled "Spyder (Python 3.4)" and features a menu bar with options: Fichier, Édition, Recherche, Source, Exécution, Débuguer, Consoles, Outils, Affichage, and Aide. Below the menu is a toolbar with various icons for file operations and execution. The central area is divided into three main panels:

- Code Editor:** Displays a Python script named `appel_tva.py`. The code includes comments in French and a function `pttc_normal` that calculates the net price after tax. The current line of code is `print(pttc)`.
- Explorateur de variables (Variable Explorer):** A table showing the current state of variables in the workspace.

Nom	Type	Taille	Valeur
pht	int	1	100
pttc	float	1	120.0
- Console IPython:** Shows the output of the code execution. It displays the prompt `In [1]:` followed by the command `runfile('D:/Travaux/university/Cours_Universite/Supports_de_cours/Informatique/appel_tva.py', wdir='D:/Travaux/university/Cours_Universite/Supports_de_cours/Informatique')`. The output shows the calculated net price: `prix : 100` and `120.0`.

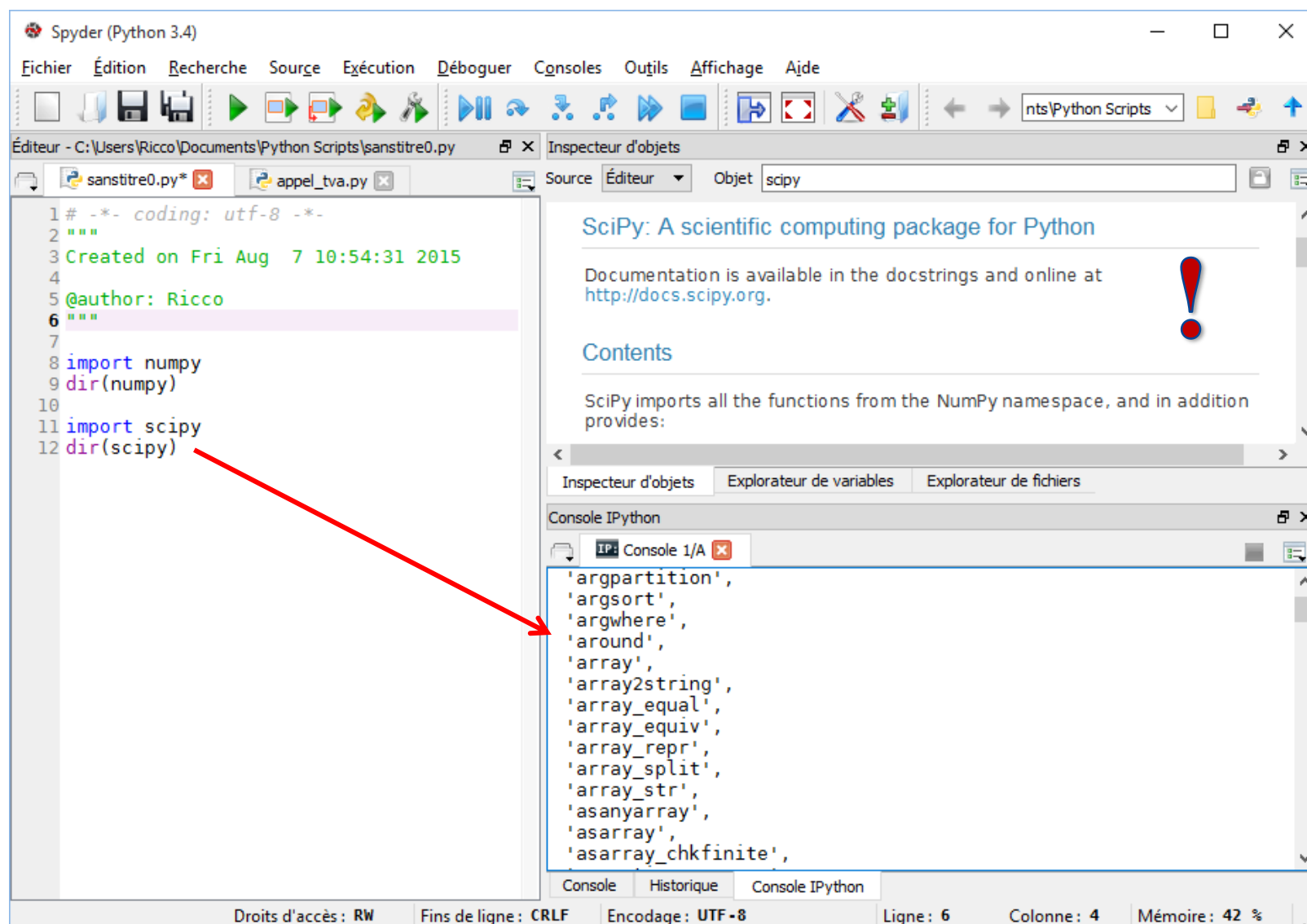
At the bottom of the window, there is a status bar with information: Droits d'accès : RW, Fins de ligne : CRLF, Encodage : UTF, Ligne : 13, Colonne : 12, Mémoire : 44 %.

Annotations in the image highlight key features:

- Editeur de code évolué (aide, complétion, ...).** On peut exécuter tout le programme, ou seulement une partie du code (oui, c'est un langage interprété).
- Entre autres, explorateur de variables.**
- Shell IPython (console, on peut entrer les commandes interactivement), plus évolué (ex. rappel des dernières lignes de commandes), avec des fonctionnalités spécifiques (ex. les commandes magiques avec % et %%).**

On dispose d'un environnement de développement intégré qui n'est pas sans rappeler **RStudio** (pour les férus de R)

Ceux qui nous intéressent – calcul scientifique, calcul statistique – sont directement disponibles!



De la documentation à profusion (n'achetez pas des livres sur Python)

Site du cours

http://eric.univ-lyon2.fr/~ricco/cours/cours_programmation_python.html

Site de Python

Welcome to Python - <https://www.python.org/>

Python 3.4.3 documentation - <https://docs.python.org/3/index.html>

Portail Python

Page Python de [Developpez.com](http://developpez.com)

Quelques cours en ligne

P. Fuchs, P. Poulain, « [Cours de Python](#) » sur Developpez.com

G. Swinnen, « [Apprendre à programmer avec Python](#) » sur Developpez.com

« [Python](#) », Cours interactif sur [Codecademy](#)

POLLS (KDNuggets)

Data Mining / Analytics Tools Used

Python, 4^{ème} en [2015](#)

What languages you used for data mining / data science?

Python, 3^{ème} en [2014](#) (derrière R et SAS)